

Listing of Claims:

Claims 1-90 (Canceled)

91. (Currently Amended) ~~An oil~~ A solution comprising an oil-in-water emulsion, comprising:

an oil component comprising polyunsaturated fatty acids;

an emulsifier in an amount from about 1 wt.% to about 20 wt.%;

an emulsion stabilizer; and

water;

wherein the oil emulsion has not been heat treated.

92. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein the oil component comprises polyunsaturated fatty acids having at least three double bonds and a chain length of at least 18 carbons.

93. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein the oil component comprises a fatty acid selected from the group consisting of linolenic acid, stearidonic acid, arachidonic acid, eicosapentaenoic acid, docosapentaenoic acid, docosahexaenoic acid and mixtures thereof.

94. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein the oil component comprises an oil from a source selected from the group consisting of plants, genetically modified plants, microbial oils, genetically modified microbial oils, fish oils and mixtures thereof.

95. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 94, wherein the plants are selected from the group consisting of algae, flaxseeds, rapeseeds, corn, evening primrose, soy, sunflower, safflower, palm, olive, canola, borage and mixtures thereof.

96. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 94, wherein the genetically modified plants and genetically modified microbial oils are genetically modified by the introduction or modification of polyketide synthase genes.

97. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein the oil component comprises an oil from a microbial source selected from the group consisting of Thraustochytriales, dinoflagellates, and fungal sources.

98. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein the emulsifier is selected from the group consisting of polysorbate esters, lecithin, monoglycerides, diglycerides, organic acid esters of monoglycerides, propylene glycol esters of fatty acids, polyglycerol esters of fatty acids, propylene glycol monostearate, sorbitan monostearate, sorbitan trioleate, and sodium lauryl sulfate and mixtures thereof.

99. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein the emulsifier is selected from the group consisting of polysorbate esters, lecithin and mixtures thereof.

100. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein the emulsifier and the oil are from the same source.

101. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein the stabilizer is selected from the group consisting of xanthan gum, alginate, gellan gum, carboxy methyl cellulose, chitin and mixtures thereof.

102. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, further comprising an antimicrobial component.

103. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 102, wherein the antimicrobial component is selected from the group consisting of propylene glycol, potassium sorbate, sodium benzoate, ascorbic acid, phosphoric acid, citric acid and mixtures thereof.

104. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein the weight ratio of oil component to the emulsifier is between about 1:1 and about 99:1.

105. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein the weight ratio of oil component to the emulsifier is about 6:1.

106. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein the ratio of water to emulsion stabilizer is between about 1:0.1 to about 1:0.001.

107. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein the ratio of water to emulsion stabilizer is between about 1:0.05 to about 1:0.005.

108. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein the ratio of oil component to water is between about 2:1 to about 1:25.

109. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein the oil emulsion is physically stable for at least about 30 days.

110. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 109, wherein the oil emulsion is physically stable for at least about 30 days at a pH range from about 3 to about 4.

111. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 109, wherein the oil emulsion is physically stable for at least about 30 days at a temperature range of about 4 C.

112. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein the oil emulsion is chemically stable for at least about 30 days.

113. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 112, wherein the oil emulsion is chemically stable for at least about 30 days at a pH range from about 3 to about 4.

114. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 112, wherein the oil emulsion is chemically stable for at least about 30 days at a temperature range of about 4 C.

115. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein the emulsion is an oil-in-water emulsion.

116. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein oil emulsion has a total bacteria count of <20 MPN/gram.

117. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein the emulsion further comprises functionally active ingredients.

118. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 117, wherein the functionally active ingredients are selected from the group consisting of flavors, pigments, sweeteners, and antioxidants.

119. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein the emulsion further comprises bioactive ingredients.

120. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 119, wherein the bioactive ingredients are selected from the group consisting of vitamins, minerals, pre-biotic compounds, pro-biotic compounds and nutraceuticals.

121. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 91, wherein the polyunsaturated fatty acids are from a marine microorganism, and wherein the oil emulsion has a pH of between about 3 to about 4.

122. (Currently Amended) A product selected from the group consisting of a food product, a cosmetic product, a pharmaceutical product, a nutraceutical product, and an industrial product, wherein the product comprises an oil emulsion comprising an oil component comprising polyunsaturated fatty acids; an emulsifier in an amount from about 1 wt.% to about 20 wt.%;; an emulsion stabilizer; and water; wherein the oil emulsion has not been heat treated.

123. (Previously Presented) The product, as claimed in Claim 122, wherein the product is a food product selected from the group consisting of liquid food products and solid food products.

124. (Previously Presented) The food product, as claimed in Claim 123, wherein the food product is a liquid food product selected from the group consisting of beverages, energy drinks, infant formula, liquid meals, fruit juices, multivitamin syrups, meal replacers, medicinal foods, and infant syrups.

125. (Previously Presented) The food product, as claimed in Claim 123, wherein the food product is a solid food product selected from the group consisting of baby food, yogurt, cheese, cereal, pancake mixes, baked goods, food bars, processed meats, ice creams, frozen desserts, frozen yogurts, waffle mixes, and replacement egg mixes.

126. (Previously Presented) The product, as claimed in Claim 122, wherein the product is a cosmetic product.

127. (Previously Presented) The product, as claimed in Claim 122, wherein the product is a pharmaceutical product.

128. (Previously Presented) The product, as claimed in Claim 122, wherein the product is a nutraceutical product.

129. (Previously Presented) The product, as claimed in Claim 122, wherein the product is an industrial product.

130. (Withdrawn) A method of forming an emulsion, comprising combining an oil component comprising polyunsaturated fatty acids; an emulsifier; an emulsion stabilizer; and water; wherein the emulsion is not heat treated.

131. (Withdrawn) The method, as claimed in Claim 130, wherein the oil component and emulsifier are combined, the emulsion stabilizer and the water are combined; and the oil component/emulsifier combination and the emulsion stabilizer/water combination are combined.

132. (Withdrawn) The method, as claimed in Claim 131, wherein the oil component/emulsifier combination is made with high shear mixing and the combination of the oil component/emulsifier combination and the emulsion stabilizer/water combination is made with high shear mixing.

133. (Withdrawn) The method, as claimed in Claim 130, wherein the oil component comprises polyunsaturated fatty acids having at least three double bonds and a chain length of at least 18 carbons.

134. (Withdrawn) The method, as claimed in Claim 130, wherein the oil component comprises a fatty acid selected from the group consisting of linolenic acid, stearidonic acid, arachidonic acid, eicosapentaenoic acid, docosapentaenoic acid, docosahexaenoic acid and mixtures thereof.

135. (Withdrawn) The method, as claimed in Claim 130, wherein the oil component comprises an oil from a microbial source selected from the group consisting of Thraustochytriales, dinoflagellates, and fungal sources.

136. (Withdrawn) The method, as claimed in Claim 130, wherein the emulsifier is selected from the group consisting of polysorbate esters, lecithin, monoglycerides, diglycerides, organic acid esters of monoglycerides, propylene glycol esters of fatty acids, polyglycerol esters of fatty acids, propylene glycol monostearate, sorbitan monostearate, sorbitan trioleate, and sodium lauryl sulfate.

137. (Withdrawn) The method, as claimed in Claim 130, wherein the emulsifier is selected from the group consisting of polysorbate esters, lecithin and mixtures thereof.

138. (Withdrawn) The method, as claimed in Claim 130, wherein the stabilizer is selected from the group consisting of xanthan gum, alginate, gellan gum, carboxy methyl cellulose, chitin and mixtures thereof.

139. (Withdrawn) The method, as claimed in Claim 130, further comprising an antimicrobial component.

140. (Withdrawn) The method, as claimed in Claim 139, wherein the antimicrobial component is selected from the group consisting of propylene glycol, potassium sorbate, sodium benzoate, ascorbic acid, phosphoric acid, citric acid and mixtures thereof.

141. (Withdrawn) The method, as claimed in Claim 130, wherein the weight ratio of oil component to the emulsifier is about 6:1.

142. (Withdrawn) The method, as claimed in Claim 130, wherein the ratio of water to emulsion stabilizer is between about 1:0.05 to about 1:0.005.

143. (Withdrawn) The method, as claimed in Claim 130, wherein the ratio of oil component to water is between about 2:1 to about 1:25.

144. (Withdrawn) The method, as claimed in Claim 130, wherein the emulsion is physically stable for at least about 30 days.

145. (Withdrawn) The method, as claimed in Claim 130, wherein the emulsion is chemically stable for at least about 30 days.

146. (Withdrawn) The method, as claimed in Claim 130, wherein the emulsion is an oil-in-water emulsion.

147. (Withdrawn) The method, as claimed in Claim 130, wherein the emulsion has not been heat treated.

148. (Withdrawn) The method, as claimed in Claim 130, wherein the emulsion has a total bacteria count of <20 MPN/gram.

149. (Withdrawn) A process for preparing a product selected from the group consisting of a food product, a cosmetic product, a pharmaceutical product, a nutraceutical product, and an industrial product, wherein the process comprises the method as claimed in Claim 130.

150. (Currently Amended) ~~An oil~~ A solution comprising an oil-in-water emulsion, comprising:

- a. an oil component comprising polyunsaturated fatty acids having at least three double bonds and a chain length of at least 18 carbons;
- b. an emulsifier in an amount from about 1 wt.% to about 20 wt.%;
- c. an emulsion stabilizer;
- d. water; and
- e. an antimicrobial component;

wherein the weight ratio of oil component to the emulsifier is between about 1:1 and about 99:1;

wherein the ratio of water to emulsion stabilizer is between about 1:0.1 to about 1:0.001;

wherein the ratio of oil component to water is between about 2:1 to about 1:25; and

wherein the oil emulsion is physically and chemically stable for at least about 30 days.

151. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 150, wherein the oil component comprises an oil from a microbial source selected from the group consisting of Thraustochytriales, dinoflagellates, and fungal sources.

152. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 150, wherein the emulsifier is selected from the group consisting of polysorbate esters, lecithins and mixtures thereof.

153. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 150, wherein the stabilizer is selected from the group consisting of xanthan gum, alginate, gellan gum, carboxy methyl cellulose, chitin and mixtures thereof.

154. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 150, wherein the antimicrobial component is selected from the group consisting of propylene glycol, potassium sorbate, sodium benzoate, ascorbic acid, phosphoric acid, citric acid and mixtures thereof.

155. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 150, wherein the weight ratio of oil component to the emulsifier is about 6:1.

156. (Currently Amended) The ~~oil emulsion~~ solution, as claimed in Claim 150, wherein the ratio of water to emulsion stabilizer is between about 1:0.05 to about 1:0.005.

157. (Currently Amended) A product selected from the group consisting of a food product, a cosmetic product, a pharmaceutical product, a nutraceutical product, and an industrial product, wherein the product comprises the oil emulsion as claimed in Claim 150.

158. (New) The solution, as claimed in Claim 91, wherein the emulsifier is in an amount from about 8 wt.% to about 15 wt.%.

159. (New) The solution, as claimed in Claim 91, wherein the emulsifier is in an amount from about 2 wt.% to about 6 wt.%.

160. (New) The solution, as claimed in Claim 150, wherein the emulsifier is in an amount from about 8 wt.% to about 15 wt.%.

161. (New) The solution, as claimed in Claim 150, wherein the emulsifier is in an amount from about 2 wt.% to about 6 wt.%.